

SSME testing goes the way of the future

Aging Space Shuttle Main Engine Data Acquisition Systems are now being upgraded with new high-tech digital systems. These new systems will collect and store information from rocket engine tests at Stennis' propulsion test complex.

A team made up of NASA, Lockheed Martin and Boeing has finished installing new low-speed and high-speed data acquisition systems at the three large test stands—A-1, A-2 and the B complex—and their test control centers. NASA's Eric Traill, of the SSME Project Office, led the installation process.

Not only will the new systems make future testing more efficient, but they will also dramatically cut the operational costs that came with maintaining the older systems. The upgraded systems will also help prepare SSC for testing new propulsion systems for future launch vehicles.

The targets of the upgrade were the low-speed Stennis Data Acquisition Systems (SDAS) and the High-Speed Data Acquisition System (HSDAS).

SDAS is a low-speed system that gathers measurements during tests.

Temperatures, pressures, flow rates and other measurements appear in real time on computer screens, which assist operations personnel. The system also records that information for analysis after the test.

SDAS replaces an older system that had outdated parts and was requiring increasing maintain costs. The new system also increases the total number of measurement channels to 512 per test stand. Boeing's Ken Cook has been responsible for converting to the new SDAS system.

HSDAS gathers and records information during tests that is dynamic—measurements that change very rapidly—such as combustion stability and vibrations of an engine's turbopump. HSDAS increases the total number of measurement channels to 128 per test stand and records the high-speed data in digital format at 100,000 measurements per second per channel.

The old system recorded the information on analog reel-to-reel FM tapes. These tapes have become very expensive to purchase and the large tape recorders have required a lot of maintenance. The information will be stored on digital high-quality Super VHS tapes. NASA's Joey

See ENGINE, Page 8



NASA Administrator Dan Goldin, far left, applauds astronaut Eileen Collins for becoming the first woman to command a Space Shuttle. First lady Hillary Rodham Clinton made the announcement at the White House this month. Pictured from left are Goldin, Hillary Clinton, Collins and President Bill Clinton.

First female shuttle commander named

Astronaut Eileen Collins (Lt. Col., USAF) will become the first woman to command a Space Shuttle when Columbia launches on the STS-93 mission in December 1998. First Lady Hillary Rodham Clinton made the announcement in early March from the Roosevelt Room of the White House.

Collins will be joined on the flight deck by Pilot Jeffrey Ashby and Mission Specialists Steven Hawley and Catherine "Cady" Coleman (Major, USAF). CNES Astronaut Michel Tognini is also a crew member.

Selected as an astronaut in 1990, Collins has served as a pilot on her two previous space flights. Her first space flight was STS-63 in February 1995 as Discovery approached to within 30 feet of Mir, during a dress rehearsal for the first shuttle/Mir docking. In May 1997, she visited the space station as pilot on board Atlantis for the sixth shuttle/Mir docking mission.

During the five-day mission, the crew will deploy the Advanced X-ray Astrophysics Facility Imaging System (AXAF), which will conduct comprehensive studies of the universe. AXAF will be the most advanced X-ray telescope ever flown.

When scientists begin using AXAF next year, they will be able to unlock the secrets of some of the most distant, powerful and violent objects known to exist. They will study such exotic phenomena as exploding stars called supernovae, strange powerful objects called quasars and mysterious black holes which are so massive that everything near them is pulled inside causing an explosion of X-rays that AXAF can study.

This will be the 26th flight of the Columbia.

For additional information on the STS-93 crew, or any astronaut, see the NASA Internet biography home page at URL:<http://www.jsc.nasa.gov/Bios/>.

LAGNIAPPE Commentary

Gator takes over NASA history

When I settled down at my 1984 IBM and started writing the third installment of our 40th Anniversary capsule history, I remembered that last month's episode focused on the different approaches the military had for getting Americans into space. And yes, here we are, "When NASA was formed, the President gave the task to the new agency, and the American 'man in space' effort became known as Project Mercury."

That'll work, I thought, so we may spend this March commentary on those first exciting years of Project Mercury, Gemini and Apollo. With no interruptions, I ought to finish this in time to tee off down at the Bridges Resort by...

"Hey Shelby! What are you doing back there in the catacombs? I would have thought you'd done enough damage to our history for one century! Ark! Ark!"

Oh, shoot! I thought. The Gator picked a fine time to come calling!

"Shelby, or must I now call you Mack Ray, I been reading your *Lagniappe* commentary, and I hate to tell you this, but if you ask me your 40th Anniversary capsule history is B-O-R-I-N-G. I thought you promised in "Way Station to Space" that you were going to start writing about some 'juicy bits' of our history. If you ask me, the old stuff you had last month about the military services' plans for space flight back in the 1950s wasn't exactly the liveliest aspects of the space program I've ever heard. If you don't intend to put some of those 'juicy' tidbits into this so-called capsule history, then I intend to write my own!"

"Just where do you get off on this business of writing your 'own history?'" I asked the Gator forcefully. "Don't you know we have a 20-year-old agreement that I do the writing, you do the cartoon drawing and never the twain shall meet?"

"Ah, come on Mack Ray, you're always trying to tell ME what to draw, and you're no artist! So how come you think I can't write? Well, I'll show you if you just give me a chance. You go on off down there and hit some golf balls or, better still, go jump in your old bay and try to catch a fish! I'll just sit right down here at this old antique IBM and write the rest of the history myself."

"Have at it, Gator," I shouted. "I'm outta here!"

I hated to leave in such a huff, but sometimes Gator is just impossible. Gator, a history writer? Excuse me!

I did stop at the door and peek back through an opening to see what old Gator was writing. I wondered if he was going to pick up where I left off last month—with NASA getting started with Project Mercury and our first man in space. He was pecking away with two claws on the computer keyboard:

"It was a dark and stormy night..."

Oh geez, I thought, is Gator making it a "Peanuts" mystery?

M.R.H.

NASA NEWSCLIPS

Mars dust storm observed---For the first time in Mars exploration, a spacecraft has captured the full evolution of a Martian dust storm. NASA's Mars Global Surveyor mission also has returned new insights into the deeply layered terrain and mineral composition of the Martian surface, and to highly magnetized crustal features that provide important clues about the planet's interior.

These findings are among the early results from the Mars-orbiting mission being reported in a recent issue of Science magazine.

The Global Surveyor data suggest that the event began as a set of small dust storms along the edge of the planet's southern polar cap. By Thanksgiving, it had expanded into a large regional dust storm in Noachis Terra that covered almost 180 degrees longitude, while spanning 20 degrees south latitude to nearly the tip of the Martian equator.

Clark mission is cancelled---

After an extensive review, NASA has partially terminated the Clark Earth science mission due to mission costs, launch schedule delays and concerns over the on-orbit capabilities the mission might provide. NASA will retain launch vehicle services.

The Clark mission was part of NASA's Small Satellite Technology Initiative program, originally scheduled for launch in mid-1996. Named after the famous American explorer William Clark, the spacecraft was to provide a very high resolution optical element with stereo imaging capabilities that would provide NASA's former Office of Mission to Planet Earth (the current Earth Science enterprise) with useful environmental data.

Imagery provided from Clark would also have been available commercially with applications such as helping city planners assess community growth and providing space surveys of construction sites.

After a successful on-orbit test phase of the satellite, SSC would have been the primary ground station, which includes the reception of data as well as commanding the spacecraft. SSC would also have been responsible for archiving and distributing the data for NASA.



X-33 becoming a reality as first part arrives in California

NASA and Lockheed Martin saw their X-33 technology demonstrator move from the drawing board to the plant floor when the first major flight component arrived at the Lockheed Martin Skunk Works vehicle assembly facility in Palmdale, Calif. in mid-February.

A 26-foot-long, 5,500-pound aluminum liquid oxygen tank that will form much of the nose and forward third of the X-33 arrived by air from the Lockheed Martin Michoud Space Systems facility in New Orleans, La.

"The arrival of the liquid oxygen tank marks the start of an ambitious assembly schedule that will see the X-33 vehicle roll out and begin flight tests within 18 months," said Jerry Rising, Lockheed Martin Skunk Works vice president for X-33/VentureStar.

"Stennis has played a significant role in the X-33 fuel tank test program and is ready to begin the engine test program later this year. This will be a rigorous program to get the engines certified for flight, but all the systems are in place to support the program schedule," Lon Miller, deputy director of the Stennis Propulsion Test Directorate.

The tank, designed to hold more than 181,000 pounds of liquid oxygen, will supply the oxidizer needed to burn the vehicle's fuel, liquid hydrogen.

The liquid oxygen tank design also plays an important structural role in the X-33. It has a complex, two-lobed structure allowing for a close fit within the vehicle's outer shell. When filled, the tank will account for about 65 percent of total vehicle weight at liftoff.

The liquid oxygen tank design is one of a number of challenging technology areas that are key to the X-33, including the vehicle's two cutting-edge composite liquid hydrogen tanks, two linear aerospike engines, the vehicle's rugged metallic thermal protection system and advanced avionics systems, all of which will be arriving at the Palmdale facility during the coming year.

Vehicle assembly is scheduled to be completed in late spring 1999, with the first flight, to be launched from Edwards Air Force Base in Calif., scheduled for July 1999.

The wedge-shaped X-33 is a sub-scale prototype technology demonstrator leading to the next generation of commercially developed and operated single-stage-to-orbit vehicles, flying after the turn of the century, which could dramatically reduce the cost of putting payloads into space.



Stennis Space Center Director Roy Estess (left) presents a Space Act Award to NASA's Joey Kirkpatrick in recognition for his work in upgrading the data acquisition systems at the center's test complex. Kirkpatrick and three employees of Omni Technologies Inc. received the major award.

Kirkpatrick presented with Space Act Award

NASA engineer Joey Kirkpatrick and three employees of Omni Technologies Inc., Francis Grosz Jr., Kenny Lannes and David Maniscalco, received a major Space Act Award for their efforts in upgrading the data acquisition systems used by Stennis Space Center's propulsion test facilities.

They were recognized for developing a 125 Mbps (megabit-per-second) redundant fiber optic transceiver that is a critical part of the Stennis Space Center High Speed Data Acquisition System (HSDAS).

NASA is upgrading the high frequency data acquisition systems at the Space Shuttle Main Engine test complex from old analog formats to these new digital systems. The new high-speed system gathers and records dynamic measurements or events that change very rapidly. The HSDAS records the high-speed data in digital format at 100,000-measurements-per-second-per-channel for up to 128-channels-per-test-stand.

The contributions of this NASA/industry team allow the data recorders and the high-speed data acquisition system controls to be located at the test control centers of each test stand, while the digitizers are located on the individual test stands. This arrangement means that the data can be converted to digital format at the source (test stands) and then transmitted over fiber optic cable to a remote location (test control center). This eliminates signal errors associated with analog transmission over long distances of copper cable. It also means that the data can be recorded in a safe, nonhazardous location for better reliability and access during all phases of testing.

The transceivers developed through this effort increase the distance of communication between the high-speed digitizer and the recorder from 50 meters to 25 kilometers.

Computer lab helps to make learning fun

How do you convince a room full of two-year olds to sit still? The Stennis Child Development Center (SCDC) may have found the trick. The center recently opened its pre-kindergarten computer lab, where children ages two through four can gain hands-on computer experience.

The lab is sponsored by the Gulf Coast Education Initiative Consortium (GCEIC), with support from the NASA/SSC Education and University Affairs Office; the Commander, Naval Meteorology and Oceanography Command and the Naval Oceanographic Office.

"The computer lab provides a fun and stimulating learning environment where children can explore educational concepts with the click of a button," Janie Heisner, SCDC director, said.

The SCDC lab, one of the first pre-kindergarten computer labs in the state of Mississippi, contains state-of-the art software to provide children in the center with the best

See COMPUTERS, Page 9

STS-90 set for launch in April

The Space Shuttle Columbia is scheduled to launch at 1:19 p.m. CST April 16 from Pad 39-B at the Kennedy Space Center in Fla.

The primary payload is Neurolab, which consists of investigations focusing on the effects of microgravity on the nervous system.

Crew:

Richard Searfoss, Commander
Scott Altman, Pilot
Jay Buckey, Payload Specialist
Richard Linnehan, Payload Commander

Mission Specialists:

Dave Williams, Kay Hire,
James Pawelczuk.



Help is still needed to support the March Special Olympics

Sponsors and volunteers are still needed for the 1998 Mississippi Area III Special Olympics games, which will be held at Stennis Space Center on March 28. Track and field activities are scheduled from 9 a.m. to 3 p.m. in front of Building 1100.

According to the SSC coordinator from the Naval Oceanographic Office, Karen Donlon, the contestants have met the requirements established by Special Olympics. They are mentally disabled children and adults, who in some cases, also have physical disabilities.

In May, winning athletes at this event will go on to the state competition to be held at Keesler Air Force Base in Biloxi, Miss. More than 300 athletes and 400 volunteers participated in last year's Area III competition, and a similar turnout is expected this year.

Any SSC employees who wish to be sponsors can do so by making a \$15 contribution per athlete. Anyone needing more information about becoming a sponsor and/or volunteer should contact Donlon at Ext. 5882.



Oseola McCarty, pictured second from left, philanthropist and author of the book "Simple Wisdom for Rich Living," signs her book for visitors and employees following a Black History Month program sponsored by the SSC Association for Cultural Awareness held in the Visitors Center auditorium. McCarty was a special guest of the event.

Black History Month celebrated at SSC

It was standing room only in the Visitors Center auditorium during February's 19th annual Black History Month program. This year's theme was, "African Americans in Business: The Path Towards Empowerment."

The event, which was organized by the Association for Cultural Awareness, was co-sponsored this year by the Naval Oceanographic Office at SSC.

"The celebration of Black History Month is not to be taken lightly," said ACA Vice President Sam Winchester, emphasizing that African American history is also American history.

Dr. Charles Beady, president of Piney Woods Country Life School, echoed those sentiments in his keynote speech. "We may have come over in different ships, but we're all in the same boat now," he said, noting that in the 21st century, young people must be prepared to encounter and embrace diversity.

Stennis is no exception, said SSC Director Roy Estess, during a welcome address. "We have seen changes, and we're continuing to see changes in our organization and in the makeup of our work force. The number, skills, and expertise represented by African Americans are enormous," he said.

There were many thoughtful sentiments expressed throughout the program, but perhaps the most captivating were those of the event's honoree, Oseola McCarty. She made headlines in 1995 after donating \$150,000 of her life savings to the University of Southern Mississippi to provide scholarships for African American students.

"I have tried to do good for everybody, especially (by providing) scholarships to give to the children. I had to work hard, but I don't mind dividing it with them," said McCarty who autographed copies of her book, "Simple Wisdom for Rich Living," immediately following the program.

Other highlights included the Cotton Blossom Singers from Piney Woods School, a lyrical dance by Alicia Staes from Cabrini High School in New Orleans, and a drill team performance by the St. Matthew Baptist Church "Babyettes," from Picayune, Miss. The Rev. A. Francis Theriault of St. Rose De Lima in Bay St. Louis, Miss., offered the invocation.

For more information concerning the Association for Cultural Awareness, contact Denise Dedeaux at Ext. 3732 or Sam Winchester at Ext. 5136.

Women's history celebrated this month at Stennis

"Living the Legacy of Women's Rights" is this year's theme for Women's History Month at Stennis Space Center. The NAVOCEANO Federal Women's Program (FWP) sponsored the kickoff activity, "Leadership Training Opportunities."

Six female employees of NAVO and NASA participated in a panel discussion about their experiences in various development programs.

Panelist Joy Tate, a physical scientist, spent six months in England for the Royal Navy Hydrographic Long Course. Tate, who had been recommended by her manager, Martial Car, and her immediate supervisor, Ed Beeson, said the program expanded her concept of NAVO.

"The course gave me a much broader knowledge of my job," she said. "I hope to learn more about NAVO's products as a result of this training."

Some of the other leadership programs discussed were, Women's Executive Leadership, Executive Leadership Development, Upward Mobility and New Leader Program.

The National Data Buoy Center FWP also sponsored a seminar this month titled, *These Times: What We Should Know About Workplace Violence and Effects on Gambling*.

The final activity will be the Fifth Annual Information Fair sponsored by the SSC FWP Sitewide Council, March 25.

For more information about FWP activities, contact SSC Federal Women's Program Manager, Rhonda Foley at Ext. 1081.

SSC Old Timers' Day celebration set for May

Stennis Space Center's 11th annual Old Timers' Day celebration will begin at 4 p.m., Friday, May 15.

The celebration is part of Stennis Space Center's History Awareness Month that commemorates May 17, 1963—the date when construction crews cut the first tree to begin clearing land to build the center.

Former and current Stennis employees, regardless of their organizational affiliation, are invited to the celebration. This includes all government, state and contractor employees.

For more information, contact Virginia Butler at the SSC History Office at Ext. 2646 or (228)688-2646.



NASA and Lockheed Martin Stennis Operations personnel check out a new computer system that is replacing the large consoles previously used to run shuttle main engine tests at the A-1 Test Control Center. Pictured are NASA electrical engineer Katie Wallace, Tran Duong, electrical engineer with Lockheed Martin, Dave Epperson, NASA senior control systems engineer, and (far center) Dave McConnell, senior electrical engineer with Lockheed Martin Stennis Operations.

A-1 receives new high-speed acquisition system

Desktop computers are replacing the bulky panels of knobs and switches that have been used to test rocket propulsion systems at Stennis. The A-1 test stand is the first to experience the upgrade at the Space Shuttle Main Engine test complex.

Beginning later this year, A-1 will be used to test the XRS-2200 Linear Aerospike Engine, which will power the X-33 advanced technology demonstrator for the Reusable Launch Vehicle program. NASA closed the stand in October 1997 to begin making the modifications for aerospike testing.

In the process of reconfiguring the stand, a team of NASA, Lockheed Martin and Rocketdyne personnel started revamping the control systems that are used to run the engine tests. The goal was to replace the 30-year-old equipment with the latest technology.

Previously to test shuttle engines, personnel were stationed in front of large consoles containing lights, switches, knobs and buttons. Listening to instructions from the test conductor through their headsets, test personnel would flip switches or turn knobs when given the commands. It was the same control system used during the 1960s Apollo era.

With the new system, test personnel will sit in front of desktop computers. Their computer screens will show a graphical rendition, or "cartoon," of the actual facility systems. When given their commands from the test conductor, the test engineers and technicians will point and click the computer's mouse on the designated items to execute the commands that operate the tests.

Using concepts pioneered at the E-complex, the system at the A-1 is a pilot for converting the other two test stands—A-2 and the B complex—over to the new system. The old consoles will be removed from the test control centers when the system goes on line at all the test control centers.

"The diagrams of all the processes that are involved, the piping diagrams and instrument views are graphically depicted on the screen in cartoon form with animation," said NASA's Dave Epperson, senior control systems engineer. "We can actually see that a valve is open and the cartoon pipe fills with color showing that fluid is in the pipe when it detects pressure."

A key to the new system's capability is that it uses computer hardware and software that is currently on the market, or "off-the-shelf" products.

"It was my intent to use the highest performing off-the-shelf hardware and software available, and it's literally turning into leading edge technology," Epperson said. "Most people in the industry say this is the way things are going."

The new system will also do away with the antiquated control panels and other pieces of bulky equipment.

"At the end of the process, the vast number of copper wires that run from the test control centers to the test stands in the underground tunnels will be replaced with a small bundle of fiber optics," said Dave McConnell, senior electrical engineer with Lockheed Martin Stennis Operations.

Work on the A-1 project began in July 1997 with a deadline of Dec. 15, 1997. The system was installed and ready for testing on Dec. 2, 1997, about two weeks ahead of the



A series of 70mm still shots were recorded of Russia's Mir Space Station from the Earth-orbiting Space Shuttle Endeavour following undocking of the two spacecraft. A large blanket of white clouds cover thousands of square miles in this oblique panorama. On board the Mir at this point were cosmonaut Anatoly Solovyev, commander; Pavel Vinogradov, flight engineer; and Andrew Thomas, cosmonaut guest researcher. On board Endeavour were Terrence (Terry) Wilcutt, commander; Joe Edwards Jr., pilot; Bonnie Dunbar, payload commander; mission specialists David Wolf (former cosmonaut guest researcher), Michael Anderson, James Reilly, and Salizan Sharipov representing the Russian Space Agency.

Mir crew handles problems, gets work done

Controllers on the ground in Moscow were monitoring Mir's atmosphere very closely after a problem during which the contaminant filtration system overheated, producing a small amount of smoke.

The crew switched to another, identical filtration system, which removed the smoke from the cabin air. This system, called the Trace Contaminants Removal System, continues to function normally.

After the problem occurred, initial measurements from the on-board combustion products analyzer indicated an increase in carbon monoxide levels, but within 36 hours the levels had returned to normal. The problem had no effect on other systems on the orbiting complex.

U.S. astronaut, Andy Thomas continued his science program. Science investigations by Thomas on Mir are part of 27 studies in the areas of Advanced Technology, Earth Sciences, Human Life Sciences, Microgravity Research and International Space Station Risk Mitigation.

In science activities on board, Thomas continued to oversee work with the Biotechnology System Co-Culture (COCULT) experiment designed to grow two different cell types in order to form three dimensional tissue samples in microgravity.

Air bubbles in the rotating chamber have hampered the experiment's effectiveness, but researchers on the ground have developed troubleshooting measures in an effort to remove the bubbles from the chamber's growth medium. Thomas was instructed by the researchers to reduce the rate at which media and nutrients rotate around the reactor chamber. The slower rate is expected to reduce the bubbles and decrease the amount of oxygen reaching the cells. COCULT researchers wanted to ensure that the cells receive the correct amount of oxygen.

Thomas is entering his ninth week aboard Mir since becoming a station crew member January 25. He is scheduled to return to Earth in early June aboard Space Shuttle Discovery during the STS-91 docking mission to Mir. He is the seventh and final NASA astronaut scheduled to live and work aboard the Russian space station.

Water thought to be found on the Moon

There is a high probability that water ice exists at both the north and south poles of the Moon, according to initial scientific data returned by NASA's Lunar Prospector.

The Discovery Program's mission lower cost, highly focused planetary science missions, also have produced the first operational gravity map of the entire lunar surface, which should serve as a fundamental reference for all future lunar exploration missions, project scientists announced today at NASA's Ames Research Center in Moffett Field, Calif.

Just two months after the launch of the cylindrical spacecraft, mission scientists have solid evidence of the existence of lunar water ice, including estimates of its volume, location and distribution. "We are elated at the performance of the spacecraft and its scientific payload, as well as the resulting quality and magnitude of information about the Moon that we already have been able to extract," said Dr. Alan Binder, Lunar Prospector Principal Investigator from the Lunar Research Institute in Gilroy, Calif.

The presence of water ice at both lunar poles is strongly indicated by data from the spacecraft's neutron spectrometer instrument. Graphs of data ratios from the neutron spectrometer "reveal distinctive 3.4 percent and 2.2 percent dips in the relevant curves over the northern and southern polar regions, respectively," Binder said. "This is the kind of data 'signature' one would expect to find if water ice is present."

However, the Moon's water ice is not concentrated in polar ice sheets, mission scientists cautioned.

"While the evidence of water ice is quite strong, the water 'signal' itself is relatively weak," said Dr. William Feldman, co-investigator and spectrometer specialist at the Department of Energy's Los Alamos National Laboratory in New Mexico.

"Our data are consistent with the presence of water ice in very low concentrations across a significant number of craters." Using models based on other Lunar Prospector data, Binder and Feldman predict that water ice is confined to the polar regions and exists at only a 0.3 percent to 1 percent mixing ratio in combination with the Moon's rocky soil, or regolith.

Kellar and central engineering know this facility inside and out

Not many people know about it, but there is one place on the grounds of Stennis Space Center that keeps track of the design, both proposed and actual, of every structure built on site.

Deep within the heart of Building 2104, surrounded by specialized filing cabinets that contain conceptual blueprints, finished structure design schematics and facility documentation, Jeanne Kellar, senior documentation coordinator for NASA's Central Engineering Files at SSC, sits happily keeping watch over some of the most important documents on the entire site.

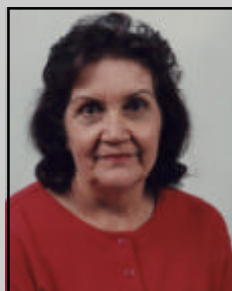
Kellar, an employee with Johnson Controls World Services Inc., has been working at Stennis for 32 1/2 years. She has literally seen the center grow out of the swamps of southern Mississippi from a unique perspective: every plan for every structure ever proposed or built at SSC passes across her desk.

"All of the drawings of the facility, whether it's part of a water line underground or the structure of a building or the exhibits at Building 1200, we have all of it," Kellar points out. "We have 40,000 drawings of the site." Her department also keeps track of any engineering modifications or changes done to any building or the construction of new facilities. After construction is finished, Kellar's staff receives copies of as-built drawings to be filed and maintain the operation drawings for the facility.

"All the changes come in here and we make sure that our CAD (Computer Aided Drafting) system operators, get the paperwork to update the drawings," Kellar says.

"It's a good place to work. I'm proud of Stennis Space Center...I'm proud to have been a part of it."

Jeanne Kellar



Kellar also coordinates the upkeep of 23 databases, which keep track of the operation and maintenance manuals for the site. Coordinating all of these different aspects of record-keeping is a huge job. Part of her job is making sure that all procedures for maintaining the records are followed.

"We have to follow NASA Headquarters' procedures plus NASA/ SSC procedures," Kellar explains. "If we don't have a procedure, we find a military, federal or industry procedure to follow."

The Central Engineering Files department is an untapped resource just waiting to be used. Instead of trying to reinvent the wheel when starting a new project, Kellar thinks the Central Engineering files should be the first to see if the project has already been done.

Architectural and engineering firms working on a concept for NASA stop in Kellar's office to do preliminary research before beginning a project proposal.

SSC Employee Profile



"If we don't have it, we'll point you in the right direction," she explains. "We're really a research library."

A native of Picayune, Miss., Kellar started at the Mississippi Test Operations as a clerk/typist and soon found she wanted to do more than type. She was one of 12 people in the department, which was just getting started. "I realized real quick that I didn't want to sit at the typewriter," she recalls. "I wanted to get up and learn how to do some of the research and other types of filing."

From there, she worked her way up through all 12 of the different classifications in that department to the position she now holds. She even sits at the same desk she started out at, "I said 'I've had this desk for 32 years, let me keep it until I retire,'" she laughs.

The people she encounters while working at Stennis are what Kellar enjoys most about her work. "I've seen a lot of people come and go, and I haven't seen any bad people. Everybody is so helpful here, like one big family, wanting to help each other."

Although eligible to retire this year, she won't because she really enjoys her job.

"It's a good place to work, I'm proud of Stennis Space Center," she says. "I'm proud to have been a part of it."



Editor's note: As part of Stennis Space Center's celebration of the 40th Anniversary of the National Aeronautics and Space Administration, the *Lagniappe* will publish monthly throughout 1998 significant dates in NASA's history.

May 25, 1961—President John Kennedy challenged Americans to "land a man on the Moon and return him safely to Earth" in the decade of the 60s.

October 25, 1961—NASA announced

that a national rocket test center would be built on the Pearl River Site in Hancock County, Miss. The site later was named the Mississippi Test Operations, then the Mississippi Test Facility and later became known as the National Space Technology Laboratories. It is now the John C. Stennis Space Center.

February 20, 1962—John Glenn Jr. became the first American to orbit the Earth aboard the Friendship 7 Mercury spacecraft.

May 17, 1963—The first tree was cut in the dense swamp in the southwest portion of the fee area starting construction of the Mississippi Test Operations.

April 23, 1966—The first rocket test was conducted at Mississippi Test Facility when

a North American Aviation Space Division S-11 Saturn V second stage (S-11-T) was fired for 18 seconds.

March 3, 1968—First Boeing-built Saturn V first stage (S-1C-T) was test fired at the Mississippi Test Facility locked in the B-2 position of the big S-1C test stand.

July 16, 1969—First manned lunar mission: Astronauts Neil Armstrong, Michael Collins and Edwin "Buzz" Aldrin Jr. launched atop Saturn V rocket boosted by first and second stages tested and flight certified at the Mississippi Test Facility.

August 17, 1969—Hurricane Camille, the most powerful hurricane ever to strike the U.S. mainland, hit the Mississippi Gulf Coast.

ENGINE...

(Continued from Page 1)

Kirkpatrick has been responsible for converting the systems on all test stands to the new digital format.

The High Speed Data Processing System has also been upgraded. This system is used to process the digitally recorded information from HSDAS and converting it to Fast Fourier Transforms, for dynamic analysis. The new system also adds the capability for on-site dynamic analysis. NASA Engineer Randy Holland has been responsible for implementing the new High Speed Data Processing System for all test stands.

"The old systems have performed their jobs well," Holland said. "At the time that they were put in, they were state-of-the-art. The new systems are an investment in our future."

A-1...

(continued from Page 5)

six-month deadline. Epperson called this a major milestone.

"The teamwork is what made it possible for us to do this work in a compressed time," said McConnell. "Everyone was focused on the common goal."

A new X-33 control system was added at the test stand, to control the additional tests systems required for X-33 Power Pack testing. NASA engineer Randy Holland and Lockheed Martin's Tran Duong were responsible for the X-33 controls development.



David Brannon, left, program manager for the Commercial Remote Sensing Program Office at Stennis Space Center, talks with Dr. Linda Roberts, director of the Office of Educational Technology and Special Advisor to the Secretary of the U.S. Department of Education. Roberts recently visited Stennis Space Center and area schools while attending a technology planning session of the Gulf Coast Education Initiative Technology Working Group at Stennis. One of the goals of the Gulf Coast Education Initiative is to work with educators to develop the next generation of scientists, engineers, technicians and resource managers who are going to use remote sensing technologies on the job. An educated work force is a key element to Brannon's goal of having Mississippi become the nation's leader in remote sensing research, product development and services.



Sponsored by the SSC NASA Education Office, an electronic field trip was broadcast live from Stennis Space Center March 5. Shelley Wooten (pictured), WLOX-TV 13 weekend anchor and reporter, served as host. The goal of the program was to inform students about the rocket propulsion testing being conducted at Stennis. Students also had the opportunity to take an in-depth look at the X-33, a half-scale prototype, which will demonstrate, in flight, the new technologies needed for a reusable launch vehicle. The broadcast featured a question-answer format in which Richard Gilbrech, NASA's Reusable Launch Vehicle project manager, and Patrick Scheuermann, NASA's chief of new business development, discussed SSC's role as lead center for rocket propulsion testing. Students from five schools across Mississippi participated in the activity.

Two meetings held to share environmental activities at Stennis

NASA's Environmental Office at Stennis Space Center held two meetings on March 17 to share information about two environmental cleanup areas at the center.

The first session was held earlier in the day at the Gainesville Room of Building 1100 for Stennis employees. The second meeting, which was open to the public, took place later in the evening at the Hancock County Library in Bay St. Louis, Miss.

NASA's Environmental Officer Ronald Magee said that all laboratory analyses have been completed and studies are being finalized regarding the cleanup activities.

"It's important now to share our findings with Stennis employees and with the residents of the surrounding community," Magee said. "This was the first chance we have had to share

See ENVIRONMENTAL, Page 10



Ron Magee (left), NASA environmental officer at Stennis Space Center, speaks with Hancock County District Two Supervisor Rocky Pullman during an information exchange meeting March 17 that focused on cleanup efforts of contaminated waste areas at Stennis. NASA sponsored an informational meeting at Stennis during the day for Stennis employees and one from 5 p.m. to 7 p.m. at the Hancock County Library in Bay St. Louis for the public.

COMPUTERS...

(continued from Page 3)

possible learning experiences. Software includes programs by Fisher Price, Disney and the Learning Company.

Heisner also said that the children enjoy the interactive programs and the control that they have over the learning activities.

A goal of the education initiative is to provide innovative ways to promote and support the efforts of schools to develop a quality education system that will permit its students to obtain necessary skills for future employment in America's high-tech economy.

Dr. Tom Burnham, executive director of the GCEIC, said that the consortium expects the computer lab to have a positive effect on the children in the center.

"As educators, we recognize that a child's intellectual capacity is greatly impacted by the early childhood experiences," Burnham said.

Heisner agrees with Burnham's assessment. "By making computers available to children in their preschool years, we are helping our children develop life-long learning skills," she said.

The hands-on computer activity enables the children to begin learning the necessary computer skills that will help them to compete in a high-tech society.

The activity also assists in develop-



Children at the Stennis Child Development Center work in the center's new computer lab. The Gulf Coast Education Initiative Consortium sponsors the lab with support from the NASA/SSC Office of Education and University Affairs, the Commander, Naval Meteorology and Oceanography Command and the Naval Oceanographic Office at Stennis. The ribbon cutting for the computer lab was held March 19. Pictured from left: Megan Murphy, Jacqueline Satter and Ross Wescovich.

ing hand-eye coordination and basic keyboarding skills, as each child must use a mouse and the keyboard to navigate through a series of computer programs.

The Stennis Educator Resource Center provided computer and software training to enable the SCDC staff to closely and effectively monitor all activity in the computer lab.

**Safety
Corner**

Information provided by
NASA's Safety Reliability and
Quality Assurance Office

Cell phones could cause critical car malfunctions

There is mounting evidence that the marriage of the car and the phone won't work.

Drivers, warned last year that talking on wireless phones could be deadly, now have another concern. Car makers say cell phones can cause other hazards:

- Owners manuals for many late-model cars warn that wireless phones can disrupt anti-lock braking systems.
- Mercedes-Benz warns that wireless phones can disrupt its Babysmart toddler restraint seat, which automatically shuts off the passenger side air bag when kids are sitting in front.

The microchips in wireless phones emit electromagnetic radiation that can interfere with the increasingly complex electronic systems aboard today's cars, just as they are known to interfere with airplane instruments.

Signals flowing through the components of wireless phones, CD players, radios and laptop computers emit electromagnetic radiation. Antennas and headphones inadvertently transmit radiation to nearby devices.

QUICK LOOK

■ **Five college scholarships are available** through the NASA College Scholarship Fund Inc. for children of current and retired NASA employees who will be studying math and science. The awards are for the 1998-99 school year. For more information, contact Mary Lou Matthews at Ext. 2123. Applications must be received by March 31.

■ **The NASA/SSC Safety Manual** (HB 1700.3B) has been recently revised. It will be temporarily available on the SSC intranet in "Information Services," until the S&MA web site is developed. To reach the SSC intranet, go the main SSC site, and then to "Services." Hard copies of the manual are available through Central Engineering Files, Bldg. 2104, Ext. 3043.

■ **The Program/Project Management Initiative** (PPMI) provides developmental opportunities to NASA personnel who manage and support NASA's programs and projects. Conventional educational/instructional techniques, new education models and interactive video teleconferences are used to enhance the business and technical management skills of the course participants with a NASA way of managing projects. Questions or requests for additional information can be directed to Anita Douglas at Ext. 3698.

ENVIRONMENTAL...

(continued from Page 9)

information about the cleanup activities."

Environmental specialists were on hand to answer questions. Tabletop exhibits showed the areas at Stennis where the cleanups will take place, as well as the progress NASA is making in the investigative process.

Throughout the space center's history since the 1960s, various chemicals were used and disposed of that may have resulted in the release of contaminants to the environment.

Stennis began identifying and investigating several potentially contaminated areas on site in 1990. Five areas are in the final stages of investigation, and NASA hopes to begin cleanup activities in late 1998. Many of the areas were found to be clean or had localized contamination that was cleaned up and the contaminated materials were disposed of at approved facilities.

Those activities included closing numerous rock/reed treatment systems, neutralization pits and above ground storage tanks were also replaced with state-of-the-art systems.

Once NASA receives the results of the site investigations and risk assessments, the results will be made available to the public.

Fact sheets about the two cleanup areas are available at the Hancock County Library in Bay St. Louis, Miss.; the Gulfport-Harrison County Library in Gulfport, Miss.; the Kiln Public Library, Kiln, Miss.; the St. Tammany Parish, La., Library; and the Margaret Reed Crosby Memorial Library in Picayune, Miss.

LAGNIAPPE

Lagniappe is published monthly by the John C. Stennis Space Center. Roy Estess is the center director, and Myron Webb is the public affairs officer. Comments and suggestions should be forwarded to the Lagniappe Office, Building 1200, Room 207, Stennis Space Center, MS 39529, or call (228)688-3583.

EDITOR:.....Sharon Saucier

CONTRIBUTING WRITERS:

Robert Collins.....Kelly Smith
Candace Hull.....Courtney Thomas

PHOTOGRAPHERS:

Charles Jones...David Oliver...Reni Winter



National Aeronautics and
Space Administration

John C. Stennis Space Center
Stennis Space Center, MS 39529

Official Business
Penalty for Private Use \$300

BULK RATE
U.S. POSTAGE PAID
Permit No. G-27